

REQUEST FOR ACCESS TO AN ABANDONED APPLICATION UNDER 37 CFR 1.14

Bring completed form to:
File Information Unit
Crystal Plaza Three, Room 1D01
2021 South Clark Place
Arlington, VA
Telephone: (703) 306-2736

In re Application of _____

Application Number

Filed

07/439,093

11-17-89

Paper No. 20

I hereby request access under 37 CFR 1.14(a)(1)(iv) to the application file record of the above-identified ABANDONED application, which is identified in, or to which a benefit is claimed, in the following document (as shown in the attachment):

United States Patent Application Publication No. _____, page _____, line _____

United States Patent Number 6451567, column _____, line _____, or

WIPO Pub. No. _____, page _____, line _____

Related Information about Access to Pending Applications (37 CFR 1.14):

Direct access to pending applications is not available to the public but copies may be available and may be purchased from the Office of Public Records upon payment of the appropriate fee (37 CFR 1.15(b)), as follows: For published applications that are still pending, a member of the public may obtain a copy of:

- the file contents;
- the pending application as originally filed; or
- any document in the file of the pending application.

For unpublished applications that are still pending:

- (1) If the benefit of the pending application is claimed under 35 U.S.C. 119(e), 120, 121, or 365 in another application that has: (a) issued as a U.S. patent, or (b) published as a statutory invention registration, a U.S. patent application publication, or an international patent application publication in accordance with PCT Article 21(2), a member of the public may obtain a copy of:
 - the file contents;
 - the pending application as originally filed; or
 - any document in the file of the pending application.
- (2) If the application is incorporated by reference or otherwise identified in a U.S. patent, a statutory invention registration, a U.S. patent application publication, or an international patent application publication in accordance with PCT Article 21(2), a member of the public may obtain a copy of:
 - the pending application as originally filed.


Signature

Ivan Chan
Typed or printed name

Registration Number, if applicable

202-437-4619

Telephone Number

10-06-03

Date

FOR PTO USE ONLY

Approved by: _____

(Initials)

Unit: _____

This collection of information is required by 37 CFR 1.14. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. BRING TO: File Information Unit, Crystal Plaza Three, Room 1D01, 2021 South Clark Place, Arlington, VA.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 1.



US006451567B1

(12) **United States Patent**
Barclay(10) **Patent No.: US 6,451,567 B1**
(45) **Date of Patent: Sep. 17, 2002**(54) **FERMENTATION PROCESS FOR
PRODUCING LONG CHAIN OMEGA-3
FATTY ACIDS WITH EURYHALINE
MICROORGANISMS**(75) **Inventor: William R. Barclay, Boulder, CO (US)**(73) **Assignee: Omegatech, Inc., Boulder, CO (US)**(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.(21) **Appl. No.: 09/461,709**(22) **Filed: Dec. 14, 1999****Related U.S. Application Data**(63) Continuation of application No. 08/968,628, filed on Nov. 12, 1997, now abandoned, which is a continuation of application No. 08/461,137, filed on Jun. 5, 1995, now Pat. No. 5,688,500, which is a continuation of application No. 08/292,490, filed on Aug. 18, 1994, now Pat. No. 5,518,918, which is a continuation of application No. 07/962,522, filed on Oct. 16, 1992, now Pat. No. 5,340,742, which is a continuation-in-part of application No. 07/911,760, filed on Jul. 10, 1992, now Pat. No. 5,340,594, which is a continuation of application No. 07/580,778, filed on Sep. 11, 1990, now Pat. No. 5,130,242, which is a continuation-in-part of application No. 07/439,093, filed on Nov. 17, 1989, now abandoned, which is a continuation-in-part of application No. 07/241,410, filed on Sep. 7, 1988, now abandoned.(51) **Int. Cl.⁷** C12N 1/00; C12N 1/12;
C12P 1/02; C12P 39/00; C12P 7/64(52) **U.S. Cl.** 435/134; 435/42; 435/135;
435/171; 435/243; 435/257.1; 435/946(58) **Field of Search** 435/243, 257.1,
435/946, 134, 42, 171, 135(56) **References Cited****U.S. PATENT DOCUMENTS**

3,296,079 A	1/1967	Griffin	167/93
3,647,482 A	3/1972	Yueh	99/141
3,667,969 A	6/1972	Kracauer	99/141
3,908,026 A	9/1975	Neely et al.	426/538
3,908,028 A	9/1975	Neely et al.	426/538
3,924,017 A	12/1975	Lee et al.	426/548
4,304,794 A	12/1981	Dwivedi et al.	426/548
4,670,285 A	6/1987	Clandinin et al.	426/602
4,758,438 A	7/1988	Stroz et al.	426/3
4,792,418 A	12/1988	Rubin et al.	554/186
4,871,551 A	10/1989	Spencer	426/2
5,012,761 A	5/1991	Oh	119/6
5,130,242 A	7/1992	Barclay	435/134
5,133,963 A	7/1992	Ise	424/94.61
5,272,085 A	12/1993	Young et al.	435/254.2
5,340,594 A	8/1994	Barclay	426/5
5,340,742 A	8/1994	Barclay	435/256
5,415,879 A	5/1995	Oh	426/2
5,492,828 A	2/1996	Premuzic et al.	435/245
5,518,918 A	5/1996	Barclay	435/257.1
5,547,699 A	8/1996	Iizuka et al.	426/615
5,688,500 A	11/1997	Barclay	424/93.1

FOREIGN PATENT DOCUMENTS

EP 0 231 904 A2 8/1987

FR	1/557/635	2/1969
JP	58-196068	5/1985
JP	58-213613	6/1985
JP	60-105471	10/1985
WO	WO 88/10112	12/1988
WO	WO 89/00606	1/1989
WO	WO 91/14427	10/1991
WO	WO 92/12711	8/1992

OTHER PUBLICATIONSAinsworth, "Introduction and Keys to Higher Taxa.", pp. 1-7, 1973, in *The Fungi. An Advanced Treatise*, vol. 4B, (G.C. Ainsworth et al. eds., Academic Press).Bahnweg et al., "A New Approach to Taxonomy of the Thraustochytriales and Labyrinthulales", pp. 131-140, 1986, in *The Biology of Marine Fungi*, (S.T. Moss ed., Cambridge University Press).Bartnicki-Garcia, "The Cell Wall: A Crucial Structure in Fungal Evolution", pp. 389-403, 1988, in *Evolutionary Biology of the Fungi*, (A.D.M. Rayner et al. eds., Cambridge University Press).

Behrens et al., "Eicosapentaenoic Acid from Microalgae", p. 623, col. 2, abstract No. 193025d, 1989, Chemical Abstracts, vol. 111, No. 21, Nov. 20.

Cavalier-Smith, "The Origin of Nuclei and of Eukaryotic Cells", pp. 463-468, 1975, *Nature*, vol. 256.Cerdeira-Olmeda et al., "A Biography of *Phycomyces*", pp. 7-26, 1987, in *Phycomyces*, (Cerdeira-Olmeda et al. eds., CSH Laboratory).Couch et al., 1973, *Lipids*, 8(7):385-392.Cruickshank, 1934, "Studies in Fat Metabolism in the Fowl" in *Biochem. J.*, 28:965-977.Dick, "Saprolegniales", pp. 113-144, 1973, in *The Fungi. An Advanced Treatise*, (G.C. Ainsworth et al. eds., Academic Press).

(List continued on next page.)

Primary Examiner—David M. Naff**Assistant Examiner**—Deborah K. Ware(74) **Attorney, Agent, or Firm**—Sheridan Ross P.C.(57) **ABSTRACT**

A process is provided for growing the microflora Thraustochytrium, Schizochytrium, and mixtures thereof, which includes the growing of the microflora in fermentation medium containing non-chloride containing sodium salts, in particular sodium sulfate. In a preferred embodiment of the present invention, the process produces microflora having a cell aggregate size useful for the production of food products for use in aquaculture. Further disclosed is a food product which includes Thraustochytrium, Schizochytrium, and mixtures thereof, and a component selected from flaxseed, rapeseed, soybean and avocado meal. Such a food product includes a balance of long chain and short chain omega-3 highly unsaturated fatty acids. Further, a process for producing lipids includes a fermentation by growing euryhaline microorganisms which are capable of producing 1.08 grams per liter of the fermentation medium per day of long chain omega-3 fatty acids per 40 grams of sugar per liter of the fermentation medium at a sodium ion concentration of 60% seawater. The lipids are then extracted from the euryhaline microorganisms.

14 Claims, 8 Drawing Sheets